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Peter Lee

University of California, Davis, School of Law, ptrlee@ucdavis.edu

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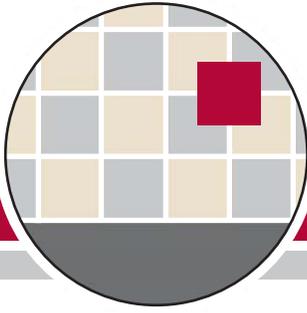
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Substantive Claim Construction as a Patent Scope Lever

Peter Lee*

INTRODUCTION

One of the central insights of economic analyses of patent law is that context matters.¹ As Robert Merges and Richard Nelson observe, patents impact innovation very differently for discrete, cumulative, chemical, and science-based technologies.² In general, overly narrow patents will not provide adequate incentive to develop an invention, while overly broad rights will preempt too many rivalrous developments.³ The key is to strike the right balance, one where patents induce the creation of new inventions without unduly stifling subsequent advances in the field.⁴

Among the many potential levers for striking the right balance is patent scope: the amount of “coverage” afforded to a patent. At an abstract level, patent scope for any given invention may be construed broadly or narrowly, and there are theoretical arguments in favor of each. Merges and Nelson enter into this debate, and they are not agnostic. Contrary to “prospect” theorists who favor broad, early patent rights on inventions,⁵ Merges and Nelson argue in favor of “rivalrous competition” and narrow patents in fields marked by cumulative innovation.⁶

The objective of calibrating patent scope is one of the holy grails of patent law: great in theory but difficult to achieve in practice. As a preliminary matter, such calibration requires one to identify appropriate places in the patent system where actors analyze and exercise discretion over patent scope. Merges and Nelson consider several, including: 1) patent prosecution, where the Patent and Trademark Office (PTO) grants, denies, and prunes back various proffered claims;⁷ 2) doctrines of disclosure and enablement, in which a patent’s technical disclosure

* Professor of Law, UC Davis School of Law. I would like to thank Mark Janis for inviting me to participate in the symposium entitled “*Patent Scope Revisited: Merges & Nelson’s ‘On the Complex Economics of Patent Scope,’ 20 Years After*” at the Indiana University Maurer School of Law.

1. Robert P. Merges & Richard R. Nelson, *On the Complex Economics of Patent Scope*, 90 COLUM. L. REV. 839 (1990).

2. *Id.* at 880-908.

3. *Id.* at 875.

4. See Michael Abramowicz & John F. Duffy, *The Inducement Standard of Patentability*, 120 YALE L.J. 1590 (2011) (applying inducement analysis to nonobviousness determinations).

5. Edmund W. Kitch, *The Nature and Function of the Patent System*, 20 J.L. & ECON. 265 (1977).

6. Merges & Nelson, *supra* note 1, at 872.

7. *Id.* at 844-45.

may define and limit the scope of coverage;⁸ 3) and the law of infringement, which can narrow or widen the effective scope of a patent.⁹

This Essay explores another mechanism for calibrating patent scope: claim construction. Claim construction is the process by which judges construe the meaning of terms in patent claims, and it often involves significant discretion. Recognizing the inherent indeterminacy of much claim construction, this Essay argues that policy considerations should guide this discretion in productive directions. Where traditional interpretative methodologies do not yield a clear answer, courts should consider the technological contributions of a patented invention and the competitive dynamics of a particular industry when construing claims. Accordingly, courts should construe claim terms broadly in light of significant contributions by a patent and narrowly where contributions are marginal or technological development in a particular field would benefit more substantively from rivalrous competition. In this fashion, “substantive” claim construction can serve as a lever for optimizing patent scope.¹⁰

This Essay proceeds in four Parts. Part I briefly surveys the law of claim construction, highlighting well-known deficiencies that the current proposal may ameliorate. Part II elaborates in greater detail the proposal for courts to utilize claim construction as a patent scope lever. By considering substantive and policy factors as claim construction “tiebreakers,” courts can conscientiously construe claims broadly or narrowly so as to best promote technological progress. While this proposal seems radical, Part III argues that it finds support in two rather disparate places: the patent system’s historical system of central claiming as well as the Supreme Court’s recent rulings on patent law. Part IV explores the unique advantages of this proposal and responds to several prominent objections

I. THE CURRENT CLAIM CONSTRUCTION LANDSCAPE

Before proposing any change, it is useful to consider the current law and institutional framework of claim construction. By statute, all patents conclude with one or more claims, which are highly stylized sentences “particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.”¹¹ Claims define the “metes and bounds” of an invention,¹² and claim construction—the process by which courts construe claim terms—often determines the outcome of infringement litigation.¹³ As we will see, claim construction is not only very important, it is also highly controversial.

8. *Id.* at 845-52.

9. *Id.* at 852-68.

10. *Cf.* Christopher A. Cotropia, *Patent Claim Interpretation Methodologies and Their Claim Scope Paradigms*, 47 WM. & MARY. L. REV. 49, 58 (2005) (recognizing the use of claim construction as a vehicle for implementing patent policy).

11. 35 U.S.C. § 112 (2006).

12. *See In re Warmerdam*, 33 F.3d 1354, 1360 (Fed. Cir. 1994).

13. *See Diamond v. Diehr*, 450 U.S. 175, 205 (1981) (Stevens, J., dissenting); Kimberly A. Moore, *Are District Court Judges Equipped to Resolve Patent Cases?*, 15 HARV. J.L. & TECH. 1, 8 (2001).

While claim construction is essential to infringement analysis, it is inherently difficult to perform. The translation of a novel, nonobviousness invention to written claims is fraught with indeterminacy. As the Court of Claims, a precursor to the Federal Circuit, famously noted, the “conversion of machine to words allows for unintended idea gaps which cannot be satisfactorily filled.”¹⁴ The difficulty of claim construction underlies significant doctrinal controversy in this area, much of it centering on *who* should perform claim construction and *how* it should be performed. The following discussion explores the relevant doctrine in greater detail by examining three key decisions.

First, in *Markman v. Westview Instruments, Inc. (Markman I)*, the Federal Circuit held, and the Supreme Court affirmed, that judges rather than juries should perform claim construction.¹⁵ Second, in *Cybor Corp. v. FAS Technologies, Inc.*, the Federal Circuit held that claim construction is a pure question of law reviewed de novo on appeal.¹⁶ Finally, in *Phillips v. AWH Corp.*, the Federal Circuit established a general interpretative framework for claim construction.¹⁷ Specifically, *Phillips* held that courts construing claims should place greater weight on “intrinsic evidence,” which includes the literal wording of the claims themselves, the patent specification, and the prosecution history, rather than “extrinsic evidence,” which includes information from outside sources, such as dictionaries, treatises, and expert testimony.

As each of these doctrines has generated significant commentary, I will only highlight a few salient points. On its face, *Markman*’s holding that judges rather than juries should perform claim construction seems quite sensible. While neither juries nor judges are technical experts, judges’ specialized experience in construing documents likely renders them better situated to construe complex patent claims.¹⁸ However, *Markman*’s assignment of claim construction to judges, and the establishment of separate *Markman* hearings to construe claims, had significant and unforeseen implications for patent suits. In particular, it helped formally separate claim construction from other issues in litigation, namely patent validity and infringement. Prior to *Markman*, fact finders commonly considered claim scope, patent validity, and infringement in an integrated, holistic fashion.¹⁹ After *Markman*, this was no longer the case.

This compartmentalized emphasis on claim construction has helped harden a system of “peripheral claiming” wherein the words of a claim define the outer boundaries of a patentee’s exclusive rights.²⁰ Within peripheral claiming, “legal interpretation of words has taken the

14. *Autogiro Co. of America v. United States*, 384 F.2d 391, 397 (Ct. Cl. 1967).

15. 52 F.3d 967 (Fed. Cir. 1995) (in banc), *aff’d* *Markman v. Westview Instruments, Inc. (Markman II)*, 517 U.S. 370 (1996).

16. 138 F.3d 1448 (Fed. Cir. 1998) (in banc).

17. 415 F.3d 1303 (Fed. Cir. 2005) (en banc).

18. See Peter Lee, *Patent Law and the Two Cultures*, 120 YALE L.J. 2, 30 n.149 (2010).

19. Dan L. Burk & Mark A. Lemley, *Fence Posts or Sign Posts? Rethinking Patent Claim Construction*, 157 U. PA. L. REV. 1743, 1750 (2009).

20. *Id.* at 1751.

place of definition of the proper scope of the invention itself.”²¹ This elevation of form over substance leaves little if any room for normative and policy considerations. Thus, in contrast to *Merges and Nelson’s* objective of calibrating patent scope, “the result of this collateral process [of claim construction] bears only a coincidental relationship to the *ideal* scope of the patent claim.”²²

The Federal Circuit’s *de novo* standard for reviewing claim construction, established in *Cybor*, has also proven highly controversial. In a number of concurrences and additional views issued in this *in banc* decision, several Federal Circuit judges argued for some degree of deference to trial courts.²³ Among other considerations, district courts are closer to the technological facts of a patent dispute and may consult outside resources to aid in claim construction that are unavailable to judges of the Federal Circuit. Since *Cybor*, problems with the Federal Circuit’s *de novo* standard of review have become well known. These include:

(1) a steadily high reversal rate; (2) a lack of predictability about appellate outcomes . . . ; (3) loss of the comparative advantage often enjoyed by the district judges . . . ; and (4) inundation of [the Federal Circuit] with the minutia of construing numerous disputed claim terms in . . . nearly every patent case.²⁴

Empirical evidence supports the first of these concerns. A study conducted eight years after *Markman* found a 34.5% reversal rate of district court claim constructions at the Federal Circuit,²⁵ which is substantially higher than its rate of reversing district court rulings in general.²⁶

Phillips and its literalist approach to claim construction have also been widely criticized. Commenting on earlier cases that ultimately culminated in *Phillips*, Craig Allen Nard has

21. *Id.* at 1762.

22. *Id.* (emphasis added). Compounding this effect, *Markman* helped diminish the importance of the doctrine of equivalents, a historically valuable lever for calibrating patent scope. Application of this doctrine has decreased significantly as courts increasingly determine infringement based on the literal text of claims that they (through *Markman* hearings) have exerted so much effort to construe. See John R. Allison & Mark A. Lemley, *The (Unnoticed) Demise of the Doctrine of Equivalents*, 59 STAN. L. REV. 955, 958 (2007); John R. Thomas, *Claim Re-Construction: The Doctrine of Equivalents in the Post-Markman Era*, 9 LEWIS & CLARK L. REV. 153, 154 (2005).

23. See, e.g., *Cybor Corp. v. FAS Techs., Inc.*, 138 F.3d 1448, 1462 (Fed. Cir. 1998) (in banc) (Plager, J., concurring); *id.* at 1463 (Bryson, J., concurring); *id.* at 1465-66 (Mayer, J., concurring in the judgment); *id.* at 1474-75 (Rader, J., concurring in part and dissenting in part); *id.* at 1480-81 (Newman, J., providing additional views).

24. *Amgen Inc. v. Hoechst Marion Roussel, Inc.*, 469 F.3d 1039, 1040 (Fed. Cir. 2006) (Michel, C.J., dissenting from the denial of the petition for rehearing en banc).

25. Kimberly A. Moore, *Markman Eight Years Later: Is Claim Construction More Predictable?*, 9 LEWIS & CLARK L. REV. 231, 239 (2005).

26. Burk & Lemley, *supra* note 19, at 1751-52.

characterized this inward-looking claim construction methodology as “hypertextualist.”²⁷ These days, entire claim construction disputes revolve around the meaning of words such as “a.”²⁸ Such a textualist, inward-looking approach to claim construction deprioritizes contextual factors such as expert testimony and industry dynamics that speak to an invention’s substantive technological contribution. This literalist claim construction methodology, moreover, cannot even assert the virtues of certainty and predictability. Claim construction after *Phillips* is still marred by high reversal rates and significant internal dissent among judges of the Federal Circuit.²⁹

As a general matter, the current framework for claim construction simply “isn’t working.”³⁰ Perhaps most importantly, it undermines certainty in two ways. First, claim construction remains highly indeterminate. Claims have become highly technical and formal, and drafting and reading claims has become an art in its own right with its own particular conventions. Indeed, as John Golden observes, it is unlikely that an ordinary technical artisan, unversed in these conventions, can glean much of anything from patent claims.³¹ Second, even after a district court has issued a claim construction ruling, the Federal Circuit’s de novo standard of review extends this uncertainty deep into the latter stages of patent litigation. The district court’s claim construction is but an opening gambit that has a good chance of being reversed on appeal.³²

In addition to these general critiques, the current claim construction framework is particularly ill-suited for calibrating patent scope. Claim construction has become an exercise in parsing words rather than ascertaining the substance and significance of a patented invention.³³ The current system thus cannot operationalize the insight that optimizing claim scope requires a thorough understanding of an invention, its technical contributions, and its surrounding technological landscape. More specifically, *Phillips*’ literalist claim construction methodology is highly antithetical to context. For example, the fact that an industry (such as information technology) advances rapidly with rivalrous competition might auger in favor of construing patents narrowly. However, under the *Phillips* rubric, such extrinsic information has little if any place in construing claims.

27. Craig Allen Nard, *A Theory of Claim Interpretation*, 14 HARV. J.L. & TECH. 1, 6 (2000).

28. *N. Am. Vaccine, Inc. v. Am. Cyanamid Co.*, 7 F.3d 1571, 1581 (Fed. Cir. 1993); see Burk & Lemley, *supra* note 19, at 1753.

29. See Michael Saunders, *A Survey of Post-Phillips Claim Construction Cases*, 22 BERKELEY TECH. L.J. 215, 236 (2007) (finding a claim construction reversal rate of 39.5% after *Phillips*, a figure that is somewhat inflated as it excludes Rule 36 affirmances); R. Polk Wagner & Lee Petherbridge, *Did Phillips Change Anything? Empirical Analysis of the Federal Circuit’s Claim Construction Jurisprudence* 24 (Mar. 2009) (unpublished manuscript), available at http://www.law.yale.edu/documents/pdf/Intellectual_Life/Polk_Wagner.pdf (showing that the rate of dissents and concurrences in claim construction appeals at the Federal Circuit increased after *Phillips*).

30. Burk & Lemley, *supra* note 19, at 1744.

31. John M. Golden, *Construing Patent Claims According to their “Interpretive Community”*: A Call for an Attorney-Plus-Artisan Perspective, 21 HARV. J.L. & TECH. 321, 339-40 (2008).

32. Burk & Lemley, *supra* note 19, at 1751.

33. *Id.* at 1745.

II. THE PROPOSAL: SUBSTANTIVE CLAIM CONSTRUCTION AS A PATENT SCOPE LEVER

To address these limitations, this Essay proposes reforming claim construction so that it can better serve as a lever for calibrating patent scope. This proposal would render patent scope more sensitive to economic and industrial context as well as address several lingering deficiencies of the current claim construction regime. In short, I propose a more substantive, holistic approach to claim construction in which courts augment their *Phillips* analysis by considering a patented invention's technological contribution, attributes of the allegedly infringing device, and the competitive landscape in which these technologies operate. Where the *Phillips* methodology does not yield a clear interpretation, I suggest that policy considerations aimed at promoting technological progress should inform claim construction. Thus, depending on context, courts should construe terms broadly based on an invention's considerable technological merit and the need to maintain strong incentives to invent³⁴ or narrowly to facilitate competitive developments in a particular field.

This new approach could arise in several ways. Most ambitiously, Congress could amend the Patent Act to clarify that courts should consider an invention's technological merit, the accused device, and the competitive dynamics of a particular field when construing claims. Because legislative action is unlikely,³⁵ however, such reform is more likely to arise from the Federal Circuit or Supreme Court. Indeed, in some ways, this proposal simply rehabilitates and adapts two judge-made doctrines that have historically influenced patent scope: 1) the "pioneer inventions" doctrine whereby foundational advances of high social value receive broader construction³⁶ and 2) the principle that public notice concerns weigh in favor of construing claims narrowly where both broad and narrow interpretations are equally plausible.³⁷ Whatever the mechanisms used, this proposal would shift attention away from the literal text of patent claims and more toward a substantive appraisal of a patent's technological contribution.³⁸

34. Of course, it may seem odd to shore up ex ante incentives to invent with ex post claim constructions. However, this limitation would be eliminated over time as courts developed a track history of construing pioneering inventions broadly, thus establishing ex ante expectations of broad coverage.

35. Congress is beset by interest group politics that may discourage such a proposal. Cf. Rochelle Dreyfuss, *Pathological Patenting: The PTO as Cause or Cure*, 104 MICH. L. REV. 1559, 1571 (2006).

36. See Michael J. Meurer & Craig Allen Nard, *Exchange: The Doctrine of Equivalents*, 93 GEO. L.J. 1947, 2002-03 (2005). Similarly, pioneer status may also justify broader application of the doctrine of equivalents. See *Graver Tank & Mfg. Co. v. Linde Air Products Co.*, 339 U.S. 605, 608 (1950); Mark A. Lemley, *The Economics of Improvement in Intellectual Property Law*, 75 TEX. L. REV. 989, 1072-73 (1997).

37. See *Athletic Alternatives, Inc. v. Prince Mfg., Inc.*, 73 F.3d 1573, 1581 (Fed. Cir. 1996).

38. As such, there are clear parallels between this proposal and the European practice of "purposive" claim interpretation, which is neither extremely literalist nor completely divorced from patent text. See ROBERT PATRICK MERGES & JOHN FITZGERALD DUFFY, *PATENT LAW AND POLICY: CASES AND MATERIALS* 826-29 (4th ed. 2007).

To illustrate this new approach, consider a pre-*Phillips* claim construction dispute, *Wang Laboratories, Inc. v. America Online, Inc.*³⁹ In this case, Wang sued America Online for infringing its patent on an online information display system. A crucial issue was whether the term “frame” in Wang’s patent claims encompassed only “character-based” display protocols, or if it also covered “bit-mapped” display protocols, both of which existed at the time of invention.⁴⁰ Patentee Wang favored the broader construction while defendant America Online, whose system used a bit-mapped protocol, argued that “frame” was limited to character-mapped protocols. Drawing from the specification and prosecution history, the Federal Circuit held that a “frame” only referred to a character-mapped system.⁴¹ However, the court integrated its analysis with references to extrinsic evidence, notably inventor testimony that “Wang had not been able to implement a bit-mapped protocol in the claimed system.”⁴²

While *Phillips* would downplay the importance of such extrinsic evidence, I argue that it should have greater probative weight for several reasons. First, it provides a more accurate depiction of the technological scope of the patented invention. Wang’s awareness of and inability to practice a bit-mapped protocol suggests that its patent should be appropriately cabined. While intrinsic evidence is likely to describe what an invention *is*, it is not likely to describe what it *is not* (other than for purposes of distinguishing prior art). Evidence of what an invention *is not* can be crucial to demarcating its appropriate boundaries. Second, this evidence highlights the clarifying role of the *allegedly infringing device* in construing patent claims.⁴³ By providing a concrete basis for comparison, the accused device can focus and clarify claim construction.⁴⁴

This proposal for a more substantive approach to claim construction would both effectuate and necessitate several reforms to the current legal framework. Most fundamentally, it would encourage a more holistic approach to claim interpretation, integrating claim construction with considerations of validity and infringement. Additionally, it would increase reliance on extrinsic evidence, including a wider universe of extrinsic evidence than contemplated in the *Phillips* framework. Within that framework, extrinsic evidence, such as dictionaries,

39. 197 F.3d 1377, 1381-83 (Fed. Cir. 1999). While decided before *Phillips*, *Wang* nevertheless exhibits a claim construction methodology focused on intrinsic evidence, especially the specification. See Cotropia, *supra* note 10, at 107-08.

40. 197 F.3d at 1380. In character-based display protocols, the screen is divided into a grid, and the system places a character in each cell of the grid. In bit-mapped display protocols, the system encodes an image with reference to the individual pixels of a monitor. *Id.*

41. *Id.* at 1382.

42. *Id.*

43. Recent Federal Circuit doctrine has begun to capture this insight. Compare *SRI Int’l v. Matsushita Elec. Corp. of Am.* 775 F.2d 1107, 1118 (Fed. Cir. 1985) (in banc) (disavowing considerations of accused products in claim construction), with *Jang v. Bos. Scientific Corp.*, 532 F.3d 1330, 1337-38 (Fed. Cir. 2008) (requiring evidence of accused products in claim construction).

44. On a related note, the alleged infringer, who has strong incentives to distinguish her product from the patented invention, is a valuable source of extrinsic information relevant to claim construction. Thomas, *supra* note 22, at 167-68.

scientific treatises, and expert testimony, is generally directed to the patent at issue. My proposal would allow judges to also consider extrinsic evidence directed to exogenous subject matter, such as the accused product or the competitive dynamics of a particular field.

Emphasizing extrinsic evidence and policy considerations also suggests a more deferential standard of review for claim constructions on appeal. The Federal Circuit justified *de novo* review of district court claim construction based on the characterization (some would say mischaracterization) of claim construction as a pure question of law. This proposal, however, explicitly recognizes the factual nature of claim construction, thus lending itself to more deferential review. While the “clear error” standard for pure factual questions may be inappropriate, an intermediate standard of review for mixed questions of law and fact may strike the right balance. Additionally, to the extent that equitable and policy considerations inform a district court’s claim construction, the relatively deferential “abuse of discretion” standard for review may be appropriate. Alternatively, a hybrid standard may emerge in which the Federal Circuit reviews policy determinations *de novo* while reviewing the underlying facts informing such determinations for clear error.⁴⁵ Whatever the precise standard, greater deference would help ameliorate the lingering uncertainty that currently taints district court claim constructions on appeal.⁴⁶

While this proposal appears radical at first glance, properly understood it is quite modest. First, this proposal is intended merely as a “tiebreaker” where traditional claim construction methodology does not provide a clear answer. This approach does not displace the *Phillips* framework; it merely supplements it. As such, it would apply with greater or lesser force to different technological areas. For example, while chemistry and biotechnology inventions lend themselves to accurate representation in words, construing claim terms for machines and software may leave more room for interpretation.⁴⁷

Second, this proposal merely makes explicit what courts are probably doing anyway. As seen in *Wang Laboratories*, courts are likely to consider the accused product when construing patent claims. After all, claim construction is but a predicate step in an overarching process of determining infringement. This proposal also parallels judicial intuition to the extent that an invention that has made a larger technological contribution should be entitled to a broader

45. Along these lines, the Federal Circuit could play a salutary role by reviewing policy determinations and providing high-level guidance to district courts. Given its vast exposure to patent litigation, the Federal Circuit is well-positioned to identify industry-specific dynamics that affect technological progress. For example, in the nonobviousness context, the Federal Circuit has indicated that biotechnology is an “unpredictable art” while computer science is more “predictable.” See Dan L. Burk & Mark A. Lemley, *Is Patent Law Technology-Specific?*, 17 BERKELEY TECH. L.J. 1155, 1157 (2002). In similar fashion, the Federal Circuit may be well-suited to identify particular industries where rivalrous competition and narrow patents are most conducive to innovation.

46. Cf. Craig Allen Nard, *Process Considerations in the age of Markman and Mantras*, 2001 U. ILL. L. REV. 355, 369.

47. Thomas, *supra* note 22, at 162.

construction, a principle that informs the historical doctrine of pioneer patents.⁴⁸ The following Part draws upon both historical practice and recent developments in patent law to further underscore the plausibility and desirability of utilizing claim construction as a scope lever.

III. HISTORICAL AND CONTEMPORARY GUIDANCE

As one theme of this Essay is context, it is useful to situate the proposal advanced here within a historical and contemporary landscape. This Part argues that the current proposal for substantive claim construction finds conceptual and doctrinal support in both the patent system's historical use of central claiming as well as the Supreme Court's recent rulings on patent law.

A. Central Claiming

Astute observers of patent law will recognize that substantive claim construction reflects many of the principles of central claiming. As noted, modern U.S. patent law generally utilizes a peripheral claiming system in which patent claims define the outer limits of an inventor's exclusive rights.⁴⁹ However, throughout much of its history, the United States utilized a central claiming system that operated very differently. In such a system, the patentee typically describes one or more representative embodiments of an invention that demonstrate its central technological core or essence. Patentees then enjoy a zone of exclusivity that extends as a penumbra around that core. Thus claims (or, prior to claims, a patent's written description) define the "central" core of the patent right rather than mark its periphery.

Central claiming is indelibly linked to a more holistic, substantive approach to patent construction.⁵⁰ Within such a system, "courts determine how much protection the patent is entitled to by looking at the prior art that cabins the invention, how important the patentee's invention was, and how different the accused device is."⁵¹ This holistic approach encouraged substantive engagement with inventions and their technical merit and eschewed a legalistic focus on patent text. According to John Golden, "The protracted historical mixing of patent construction questions with those of validity, merit, and equivalence provided fertile ground for assertions that a technology-centered, rather than a law-centered, perspective should govern determinations of claim scope."⁵²

Thus up until recent times, courts commonly integrated claim scope inquiries with evaluations of a patent's validity, technological merit, and social worth.⁵³ As Golden notes,

48. *See supra* note 36.

49. *See* Craig Allen Nard, *Legal Forms and the Common Law of Patents*, 90 B.U. L. REV. 51, 70-71 (2010). One exception to this regime of peripheral claiming is the doctrine of equivalents, which expands a patentee's zone of exclusive rights beyond the literal scope of her claims.

50. I use the term "patent construction" to emphasize the integrated, holistic nature of this analysis that goes beyond simply parsing the words of patent claims.

51. Burk & Lemley, *supra* note 19, at 1746.

52. Golden, *supra* note 31, at 362.

53. *Id.* at 352.

this practice persisted deep into the twentieth century, well after congressional enactments in 1836⁵⁴ and 1870⁵⁵ initiated the transition to peripheral claiming.⁵⁶ The well-known Supreme Court case of *Eibel Process Co. v. Minnesota & Ontario Paper Co.*⁵⁷ offers a particularly cogent example of this more holistic approach to patent construction. There, the Court stated:

In administering the patent law, the court first looks into the art, to find what the real merit of the alleged discovery or invention is, and whether it has advanced the art substantially. If it has done so, then the court is liberal in its construction of the patent, to secure to the inventor the reward he deserves. If what he has done works only a slight step forward . . . then his patent, if sustained, will be given a narrow scope, and infringement will be found only in approximate copies of the new device.⁵⁸

Similarly, in *Cole v. Malleable Iron Fittings Co.*, Judge Learned Hand rejected a literalist approach to patent scope by observing that “the interpretation of patent claims depends more upon the advance made by the inventor than upon the words used.”⁵⁹ And as recently as 1966, the Supreme Court integrated questions of technological merit and patent validity when construing the claims of a patented battery in *United States v. Adams*.⁶⁰ Placed in historical context, the current approach to claim construction, marked by isolation from other infringement inquires and hypertextualism, represents a break from longstanding practice.⁶¹

However, while extolling the virtues of central claiming, it is important to distinguish my proposal from past practice. Rather than advocate a return to central claiming, I frame my proposal as an intermediate approach that is situated within the modern system of peripheral claiming. While central claiming and concomitant claim construction methodologies offer valuable flexibility, they may lack determinacy and fail to provide clear public notice of the boundaries of a patentee’s exclusive rights. There is value to be gained from the concreteness of peripheral claiming (although, as I explore further below, the modern system provides less concreteness than promised). Along these lines, where modern claim construction provides a clear definition of a claim term, the justification for more holistic, policy-oriented claim construction loses force. However, where this is not the case and courts must exercise discretion, historical practices of holistic patent construction may prove instructive.

54. Patent Act of July 4, 1836, ch. 357, 4 Stat. 117 (repealed 1952).

55. Patent Act of 1870, ch. 230, 16 Stat. 198 (1870).

56. See Golden, *supra* note 31, at 349, 353-56.

57. 261 U.S. 45 (1923).

58. *Id.* at 63.

59. 70 F.2d 686, 687 (2d Cir. 1934).

60. 383 U.S. 39, 43 (1966); see Golden, *supra* note 31, at 355.

61. Golden, *supra* note 31, at 359 (“Until recently, courts and commentators did not consistently distinguish between determination of claims’ literal scope—a process today characterized as ‘claim construction’—and determination of a claimed invention’s equivalents, a process currently characterized as part of the infringement inquiry.”).

B. The Supreme Court's Holistic Turn

This proposal for substantive claim construction finds support not only in history, but also in recent patent decisions by the Supreme Court. At a broad level, a potential objection to the proposal herein advanced is that factually-intensive claim construction may create uncertainty and leave too much discretion to district court judges. However, in its recent patent jurisprudence, the Supreme Court has consistently favored holistic standards over formalistic rules, thus creating a doctrinal climate conducive to substantive claim construction.

As I have described elsewhere, the Supreme Court's recent re-entry into patent law has been accompanied by a notable methodological shift.⁶² Whereas Federal Circuit patent doctrine has long been characterized as formalistic,⁶³ the Supreme Court's recent patent decisions have had a decidedly holistic character. In doctrinal areas as diverse as prosecution history estoppel, nonobviousness, and remedies, the Supreme Court has eschewed bright-line rules in favor of multi-factored standards and broad judicial engagement with technological facts.⁶⁴ This "holistic turn," provides conceptual support for the substantive approach to claim construction proposed here.

Consider, for example, the Supreme Court's recent pronouncements on nonobviousness. Historically, the Federal Circuit applied a formalistic test for nonobviousness that heavily emphasized the presence or absence of some "teaching, suggestion, or motivation" to create the patented invention at issue.⁶⁵ The presence of such a factor weighed heavily toward a finding of obviousness, while the absence of such a factor weighed heavily toward nonobviousness. In *KSR International Co. v. Teleflex Inc.*, the Supreme Court repudiated the Federal Circuit's formalistic application of the "TSM" test.⁶⁶ In its place, the Court emphasized the "functional," "expansive and flexible approach" to nonobviousness arising from prior precedents.⁶⁷ Rather than rely on "precise teachings" from the prior art, courts should consider a larger universe of more amorphous factors, such as industry dynamics and market demand, in determining nonobviousness. *KSR* thus repudiates formalistic, inward-looking inquiries in favor of holistic standards featuring greater factual analysis and judicial discretion.⁶⁸

62. Lee, *supra* note 18.

63. See generally Lee, *supra* note 18, at 20-41; John R. Thomas, *Formalism at the Federal Circuit*, 52 AM. U. L. REV. 771 (2003).

64. Lee, *supra* note 18, at 42-60.

65. See, e.g., *In re Dembiczak*, 175 F.3d 994 (Fed. Cir. 1999). The so-called TSM test has been the subject of voluminous academic commentary. See, e.g., Lee Petherbridge & R. Polk Wagner, *The Federal Circuit and Patentability: An Empirical Assessment of the Law of Obviousness*, 85 TEX. L. REV. 2051, 2098 (2007); R. Polk Wagner & Katherine J. Strandburg, Debate, *The Obviousness Requirement in Patent Law*, 155 U. PA. L. REV. PENNUMBRA 96, 98 (2006), http://www.pennumbra.com/debates/pdfs/Wagner_Strandburg_Debate.pdf.

66. 550 U.S. 398 (2007).

67. *Id.* at 415 (citing *Graham v. John Deere Co.*, 383 U.S. 1, 12 (1966); *Hotchkiss v. Greenwood*, 52 U.S. 248 (1850)).

68. See Lee, *supra* note 18, at 51-56.

This “holistic turn” resonates well with the current proposal to inject greater factual and policy considerations into claim construction. The Supreme Court has consistently rejected literalist, formalistic reasoning in favor of contextual inquiries. There is a concern, of course, that these inquiries will raise the information costs of adjudication and overwhelm generalist judges lacking technical expertise.⁶⁹ Nevertheless, the Court has implicitly concluded that achieving accurate outcomes in patent litigation often requires courts to grapple more deeply with technological facts and context.⁷⁰ Turning to the proposal at hand, with appropriate guidance,⁷¹ there is reason to believe that district courts can effectively perform substantive claim construction,⁷² considering not only the *Phillips* framework but also additional contextual factors when interpreting claims.

IV. ADVANTAGES, OBJECTIONS, AND RESPONSES

This proposal for substantive claim construction confers several advantages. First and foremost, it begins to realize the “holy grail” of calibrating patent scope to maintain incentives to invent without unduly burdening sequential developments in a field. The United States employs a “unitary” patent system that, at least nominally, applies the same standards of patentability and confers the same bundle of rights to all inventions.⁷³ However, there is much wisdom to tailoring patent law to particular inventions and industries.⁷⁴ The current proposal allows courts to operationalize the economic insight that context should help determine the breadth or narrowness of particular patents.

This proposal would transform claim construction from a literalist exercise in parsing words to a substantive examination of a patented invention. In doing so, it would focus attention on “the issues that really matter in deciding patent scope—the importance of the invention in the industry, the nature of the technology, how this invention relates to others in producing marketable products, and the relationship between the patentee’s invention and the accused device.”⁷⁵

In addition, the present proposal would ameliorate several longstanding defects of the current claim construction regime. This proposal pushes back against the artificial segregation of claim construction from validity and infringement inquiries. More substantively, it would

69. *Id.* at 62-63.

70. *Id.* at 46.

71. *See id.* at 62-75.

72. As noted, the Federal Circuit can help guide such claim construction by developing case law that is attentive to the varying competitive dynamics of different technological fields. *See supra* note 45.

73. While the patent system is unitary on its face, doctrinal differences (and a few statutory exceptions) mean that, in practice, the patent system can apply very differently to different fields of technology. *See generally* Burk & Lemley, *supra* note 45.

74. *See generally* DAN L. BURK & MARK A. LEMLEY, *THE PATENT CRISIS AND HOW THE COURTS CAN SOLVE IT* (2009).

75. Dan L. Burk & Mark A. Lemley, *Quantum Patent Mechanics*, 9 LEWIS & CLARK L. REV. 29, 54 (2005).

help reduce the lingering uncertainty arising from pure de novo review of claim constructions on appeal. This proposal takes seriously the factual basis for claim construction, thus requiring a higher level of deference upon review and bringing greater (and earlier) certainty to a central issue in patent litigation.

A. Comparative Considerations

Any proposal for reform must not only articulate its own virtues, it must also address its relative strengths compared to other potential solutions. At the outset, I do not contend that claim construction is categorically superior for calibrating patent scope than other potential levers. Perhaps a multi-pronged strategy involving reforming claim construction as well as utilizing other mechanisms is ideal. That being said, reforming claim construction enjoys several specific advantages relative to other approaches. In the interest of brevity, I will focus on the other “scope levers” discussed by Merges and Nelson: patent prosecution, doctrines of disclosure and enablement, and infringement analysis.

First, the current proposal exhibits certain advantages relative to relying on the PTO to calibrate patent scope during prosecution. The first has to do with timing. During prosecution, the universe of information about a patent is somewhat limited. Just as secondary considerations of nonobviousness are likely to become apparent only after a patented invention has been on the market, the problems of broad (or narrow) patents in a technical field are likely to manifest only after the passage of time. Courts adjudicating infringement suits thus have access to a broader array of information than is available to the PTO at the time of prosecution.⁷⁶ Second, while the PTO is fairly limited in its resources, litigation will likely motivate parties to provide more and better information about a patent and its context. Finally, prosecution proceeds without any knowledge of (future) allegedly infringing inventions.⁷⁷ As discussed, however, the accused product in an infringement suit can shed valuable light on the optimal scope of a patent.

Second, calibrating patent scope through claim construction enjoys several advantages relative to relying on doctrines of disclosure and enablement. Enablement and the written description requirement operate as binary on-off switches: a court either holds that a claim is valid, or, if the claim exceeds what the patent enabled or described, the court must invalidate it in full.⁷⁸ Claim construction, however, represents a scalpel by which court may choose a narrower or broader construction of a particular term rather than affirming or rejecting an entire claim. Instinctively, one might argue that this violates the well-established canon that courts may not read limitations from the specification into the claims. This canon, however, is already in tension with the equally well-established principle that courts must

76. Cf. Peter Lee, *The Evolution of Intellectual Infrastructure*, 83 WASH. L. REV. 39, 112-13 (2008).

77. Burk & Lemley, *supra* note 19, at 1782.

78. See, e.g., *The Incandescent Lamp Patent*, 159 U.S. 465 (1895) (invalidating a claim based on lack of enablement); *Gentry Gallery, Inc. v. Berkline Corp.*, 134 F.3d 1473 (Fed. Cir. 1998) (invalidating claims based on failure to satisfy the written description requirement).

read claims in light of the specification.⁷⁹ Moreover, it bears emphasizing that under my proposal, substantive and policy considerations only come into play when traditional claim construction does not yield a clear answer; given the void that *some* interpretive gloss must fill, the charge of “redrafting” claims seems inapposite.

Third, the present proposal exhibits certain institutional advantages relative to calibrating patent scope through infringement analysis. Whatever claim construction’s metaphysical status as a question of law or a “mongrel practice,” well-settled law holds that judges rather than juries construe claims.⁸⁰ Infringement, however, is a question of fact often resolved by juries. Although open to debate, the implicit institutional competence rationale of *Markman I* and *II* suggests that judges are better suited than juries at construing documents and evidence of a highly technical nature.⁸¹ Furthermore, to the extent that “optimizing” patent scope is a discretionary judgment infused with policy considerations, such inquiries seem better suited for judges than juries. These institutional considerations suggest that judge-mediated claim construction represents a more appropriate context for patent scope calibration than infringement analysis. Finally, as noted, one of the principal infringement levers for calibrating patent scope—the doctrine of equivalents—has fallen into disfavor after *Markman*. This again suggests that claim construction is a more promising avenue for calibrating patent scope.

B. Objections and Responses

Of course, utilizing claim construction as a scope lever must address a host of potential objections. First, critics might object that substantive claim construction would undermine certainty, predictability, and the public notice function of claims.⁸² However, the simple response to this critique is that the current system does not provide much certainty anyway. According to Dan Burk and Mark Lemley, the current system based on peripheral claiming has “failed catastrophically” in providing clear notice of the metes and bounds of a patent right. Furthermore, it bears emphasizing that substantive claim construction is only intended as a tiebreaker where the *Phillips* analysis does not yield a clear answer. Additionally, while this proposal would probably not have an adverse impact on ex ante certainty (before a *Markman* hearing), it would significantly improve ex post certainty because of the higher level of deference afforded to claim constructions on appeal.

At a theoretical level, some might object that this proposal would radically and inappropriately transform claim construction from a descriptive to a normative exercise. Put differently, courts should ascertain the objective metes and bounds of a patent rather than determine some *ideal* claim scope based on normative and policy considerations. Again, the status of this proposal as an interpretative tiebreaker where no objective construction is

79. See Cotropia, *supra* note 10, at 59.

80. *Markman II*, 517 U.S. 370 (1996).

81. See Lee, *supra* note 18, at 30 n.149.

82. See Golden, *supra* note 31, at 323.

clear should allay much of this anxiety. Additionally, this critique presumes that language is determinate, and that it is relatively easy to describe (and ascertain) the boundaries of a new technology via written text. Without wading too deeply into metaphysics, I would simply highlight the well-known difficulties of translating technologies into words.⁸³ While claim construction is supposed to be a descriptive endeavor, the limitations of language frequently leave pockets of ambiguity. In such cases, courts are justified in relying on normative principles to fill the void.

Finally, some might object that factually-intensive claim construction would overwhelm the technical capacity of generalist judges. Indeed, as I have argued elsewhere, the current hypertextualist approach to claim construction may decrease judicial engagement with technology, thus simplifying adjudication.⁸⁴ As mentioned above, however, the Supreme Court has implicitly expressed confidence in the ability of district court judges to analyze technological facts and apply broad standards. Additionally, there is a sense in which substantive claim construction may be more intuitive than the current framework. While claim drafting and reading has developed its own specialized jargon, courts already resort to common sense when literal interpretations lead to absurd results.⁸⁵

CONCLUSION

Calibrating patent scope based on technological and economic context represents the holy grail of the patent system. Ideally, patents would confer enough economic power to reward (and thus encourage) invention without unduly burdening subsequent developments in a field. This Essay has argued that courts should utilize substantive claim construction as a lever for optimizing claim scope. In close cases, courts should draw on a host of contextual factors and integrate considerations of validity, infringement, and competitive dynamics when construing claims. Courts would then construe claim terms broadly based on significant technological merit or narrowly where technological contribution is marginal or the field would benefit substantially from rivalrous competition. In this manner, the patent system could help operationalize the insight that when optimizing patent scope, context matters. ■

83. See *Autogiro Co. of Am. v. United States*, 384 F.2d 391, 397 (Ct. Cl. 1967).

84. See Lee, *supra* note 18.

85. See Burk & Lemley, *supra* note 19, at 1793-94. See, e.g., *Norian Corp. v. Stryker Corp.*, 363 F.3d 1321, 1331 (Fed. Cir. 2004); cf. *KSR v. Teleflex*, 550 U.S. 398, 421 (2007) (providing greater leeway for judges to exercise common sense in nonobviousness determinations).